



VII.

plan performance

This section describes, in general terms, how the 2001 RTP meets the performance goals and objectives described earlier in the document.

REGIONAL PERFORMANCE GOALS AND OBJECTIVES

MOBILITY AND ACCESSIBILITY

The 2001 RTP's performance in terms of mobility and accessibility is depicted in Table 7.1. Mobility is measured primarily in terms of work trip travel time, PM peak freeway and non-freeway speeds and percent PM peak travel in delay for freeways and non-freeways. PM peak time period is chosen as the criteria for evaluation because it typically represents the worst travel condition in any given 24-hour period. Accessibility is measured as percent of jobs accessible within 45 minutes of door-to-door travel time by all modes. Table 7.1 identifies the improvement in mobility and accessibility that results from implementing the Plan over Baseline conditions in 2025.

The 2001 RTP will improve mobility and accessibility benefits significantly over the Baseline condition in 2025. Work trip

travel time, PM peak speed and PM peak delay all improve with Plan implementation (see exhibit 7.1). Greater improvement is seen in freeway travel speed and PM peak delay throughout the roadway system, reflecting the investment mix of highway lane miles and strategic arterial projects. Similarly, accessibility to work identifies vast improvement in transit trips, reflecting the substantial investment in transit in the 2001 RTP.

Table 7.1

MOBILITY AND ACCESSIBILITY PERFORMANCE RESULTS	
Performance Indicators	Improvement from 2025 Baseline to 2025 Plan
MOBILITY – Ease of movement of people, goods and services	
Work Trip Travel Time	7%
PM Peak Highway Speed:	
Freeway	15%
Non-Freeway	8%
Percent of PM Peak Travel in Delay:	
Freeway	14%
Non-Freeway	19%
ACCESSIBILITY – Ease of reaching opportunities as measured by the percent of commuters who can get to work within 45 minutes door-to-door travel time	
Increased Work Trips within:	
45 minutes by Auto	3%
45 minutes by Transit	48%

RELIABILITY AND SAFETY

Reliability is analyzed for transit and highway separately. Reliability for transit is simply on-time performance of the service. Reliability for highway is defined as the probability of reaching a destination within the time that it would take to travel under normal flow speed. Safety analysis is provided only for fatal and injury accidents for all modes. As shown by the analysis, the Plan does represent an improvement over the Baseline (Table 7.2).

Table 7.2

RELIABILITY AND SAFETY PERFORMANCE RESULTS	
Performance Indicators	Plan Improvement Over Baseline
RELIABILITY – Reasonably dependable levels of service as measured by the percent of on-time arrivals	
Transit	3%
Highway	11%
SAFETY – Transit with minimal risk of accident or injury as measured by reduced accidents	
Fatality Per Million Passenger Miles	0%
Injury Accidents	0%

COST-EFFECTIVENESS/COST-BENEFIT ANALYSIS

The purpose of Cost-Effectiveness / Cost-Benefit Analysis (CBA) is to facilitate a more efficient allocation of society's scarce resources. Because SCAG, like many other Metropolitan Planning Organizations (MPOs) throughout the nation, is faced with the challenge of expanding transportation investment at a time when financial resources are decreasing, both cost-effectiveness and cost-benefit analyses are important.

One component of SCAG's Performance Indicators for the 2001 RTP is a simple cost-effectiveness model. The costs of the 2001 RTP are compared to the benefits in the form of a ratio of one dollar spent for a certain amount of dollar benefits. This ratio is provided in both present-value and 1997 constant dollar terms. As indicated in Table 7.3, for every dollar invested, SCAG's 2001 RTP provides \$2.38 return in present value terms and \$4.44 return in constant dollar terms.

Table 7.3

2001 RTP COST-BENEFIT ANALYSIS				
Project	Costs (in Billions)	Benefits (in Billions)	Net Benefits (in Billions)	Value of One Dollar Invested
2001 RTP (Present Value)	\$ 10.4	\$ 24.7	\$ 14.3	\$ 2.38
2001 RTP (Constant Dollar)	\$ 24.3	\$ 108.0	\$ 83.7	\$ 4.44

In order to obtain constant dollar measures, cost and benefit values were adjusted for changes in inflation, assuming a 3 percent deflation factor and using a base year of 1997. These constant dollar values were further discounted by the real discount rate of an estimated 5 percent in order to obtain the net present value and in turn, the benefit/cost ratio in present-value terms. Present values are utilized to compare benefits and costs in different time periods. This method allows comparison of the current value of what the SCAG Region would receive in benefits over the life of the 2001 RTP if we were to invest in our plan today. The Technical Appendix provides a further discussion concerning the mechanics of discounting.

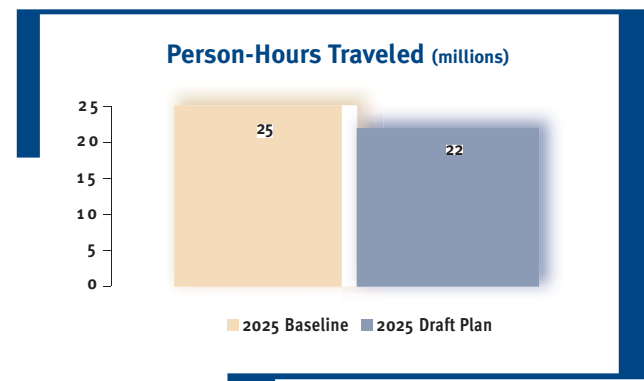
2025 Plan Freeway Congestion



All benefits assessed are mobility-related benefits including delay savings, accident reduction and air quality benefits. Certainly, these effectiveness measures do not capture all of the social benefits of the 2001 RTP. For simplicity, however, these three measures were utilized to assess the 2001 RTP benefits. SCAG derived each effectiveness measure by assessing the difference between the 2025 Baseline and the 2025 Plan. Assumed monetary values for each of these effectiveness measures are further discussed in the Technical Appendix.

In addition to the cost-benefit analysis, Figure 7.1 provides the results of a cost-effectiveness analysis (CEA) in terms of a cost per unit of outcome effectiveness. This CEA does not assume monetary values of benefits; rather, it involves two different metrics: cost in constant dollars and an effectiveness measure. In this case, the effectiveness measure is the difference in person-hours traveled (PHT) between the 2025 Baseline and the 2025 Plan. A ratio in the form of cost/effectiveness (C/E) is calculated based upon the change in person hours traveled (see Figure 7.1). Accordingly, CEA results indicate that it costs \$2.83 to reduce each person-hour traveled.

Figure 7.1



ECONOMIC IMPACTS

The SCAG IMPLAN Input-Output Model considers a full range of economic impacts through inter-industry interactions and household activities. The major elements of the 2001 RTP that will affect the economy are expenditures, revenue sources (in terms of taxes collected), transportation quality improvements, auto operating and maintenance costs, accidents and air quality improvements. The impacts of the RTP expenditures were estimated using the IMPLAN model and are presented in Table 7.4. The analysis of the other RTP impacts is included in the Technical Appendix.

The Region is expected to gain an annual average of 16,000 jobs from the implementation of public-sector funded infrastructure projects recommended in the 2001 RTP. Privately funded projects recommended in the 2001 RTP would add 12,000 jobs annually during the planning period. While there may be some negative economic impact from these new tolls, they are expected to be largely offset by improved mobility of persons and goods.

To put these employment impacts into perspective, the current Final 2001 RTP Socioeconomic Forecast shows that the SCAG Region will add 106,500 jobs annually during the 1997–2025 period. The job impacts from public-sector RTP-funded projects will account for just 16 percent of this job growth. Equally significant, employment impacts from private-sector funded investment will boost regional annual average job growth by 11 percent—to 1.7 percent per year—up from 1.53 percent under the current forecast.

Table 7.4

AVERAGE ANNUAL ECONOMIC IMPACTS OF 2001 RTP PUBLIC & PRIVATE-SECTOR FUNDED PROJECTS DIRECT, INDIRECT AND INDUCED IMPACTS			
	Jobs	Output	Value Added
Public Sector	16,587	\$ 1.5 billion	\$775,003,268
Private Sector	11,991	\$ 1.3 billion	\$606,679,640

At the Regional level, the SCAG region IMPLAN input-output model provides data on direct, indirect and induced impacts on regional output and value added resulting from public and private funded investments. The investment in public-funded projects totals \$24 billion over the 28-year period of the Plan. This investment is expected to result in a total annual average output of \$1.5 billion and annual value added of \$775 million. The 2001 RTP includes a total of \$20 billion in private investment. This investment is expected to result in a total average annual output of \$1.3 billion and value added of \$607 million.

TRANSPORTATION CONFORMITY ANALYSIS AND FINDINGS

Under EPA's Transportation Conformity Rule requirements, SCAG's 2001 RTP needs to pass four tests: 1) the Regional Emission Analysis; 2) the Timely Implementation of TCMs; 3) the Financial Constraint Determination and 4) Interagency Consultation and Public Involvement.

REGIONAL EMISSIONS ANALYSIS

EPA's Transportation Conformity Rule requires that the 2001 RTP regional emissions be consistent with the motor vehicle emissions budgets in the applicable SIPs. Consistency with emissions budgets must be demonstrated for each year for which the applicable emissions budgets are established, for the transportation planning horizon year and for any milestone years as necessary, so that the years for which consistency is demonstrated are no more than ten years apart.

The 2001 RTP regional emissions analyses must meet all of the following requirements for conformity finding:

- ▶ For the budget test, the regional emissions must be equal to or less than the emissions budgets.
- ▶ For the PM₁₀ build/no-build test, the build scenario's emissions must be less than the no-build scenario's emissions.
- ▶ For the Ozone or CO build/no-build test, the build scenario's emissions must be less than the no-build scenario's emissions; additionally, the future year emissions must be less than the 1990 base year emissions.

The build scenario means implementing the RTP and the no-build scenario means not implementing the RTP.

A summary of the regional emissions analysis is reflected in Table 7.5.

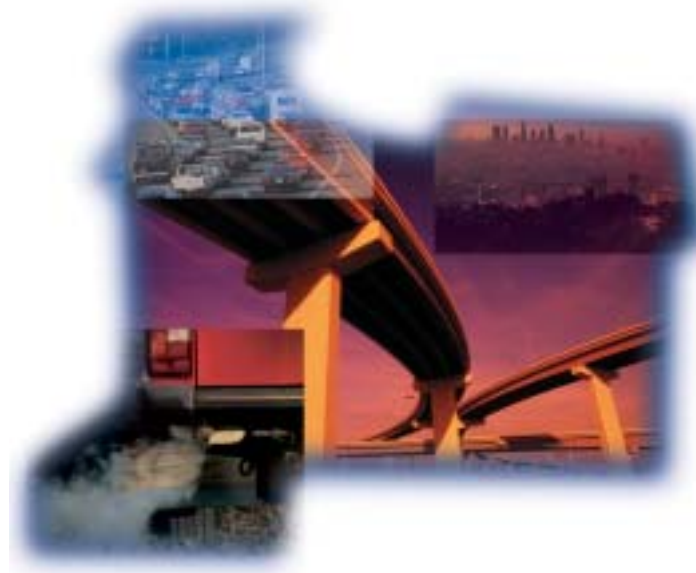


Table 7.5

SUMMARY OF REGIONAL EMISSIONS ANALYSES							
OZONE EMISSIONS ANALYSIS (TONS/DAY)—SUMMER TEMPERATURES—SCAB (EXCLUDING BANNING PASS)							
Ozone Precursor		2002	2005	2008	2010	2020	2025
ROG (VOC)	Budget	273.10	206.03	145.35	80.73	80.73	80.73
	2001 RTP	269.50	201.74	143.90	80.31	49.73	46.31
NOx	Budget	447.12	369.12	310.08	277.77	277.77	277.77
	2001 RTP	446.26	360.17	284.06	249.64	234.73	237.92

Regional emissions budget generated using EMFAC 7G. To pass, RTP emissions must be equal to or less than budget.

NO _x EMISSIONS ANALYSIS (TONS/DAY)—WINTER TEMPERATURES—SCAB (EXCLUDING BANNING PASS)						
NO2 Precursor		1994	2000	2010	2020	2025
NOx	Budget	657.30	657.30	657.30	657.30	657.30
	2001 RTP	--	--	379.91	359.94	366.05

Regional emissions generated using EMFAC 7G. To pass, RTP emissions must be equal to or less than budget.

CO (TONS/DAY)—WINTER TEMPERATURES—SCAB (EXCLUDING BANNING PASS)					
CO	1990	2000	2010	2020	2025
Build	--	--	1,851.30	1,510.01	1,515.62
No-Build	7,380.76	3,464.84	1,881.34	1,587.99	1,623.35

Regional emissions generated using EMFAC 7G. To pass, build emissions must be less than no build and 1990.

PM ₁₀ (TONS/DAY)—ANNUAL AVERAGE TEMPERATURE—SCAB (EXCLUDING BANNING PASS)						
PM ₁₀ Precursor	1990	2000	2006	2010	2020	2025
ROG (VOC)	861.38	351.85	228.24	145.83	91.99	86.40
NOx	889.73	565.50	448.64	370.73	352.28	358.43
To pass, the future year emissions must be less than 1990.						
Primary Particulate Matter	1990	2000	2006	2010	2020	2025
Build	--	--	215.526	230.218	264.486	276.830
No-Build	--	190.718	215.674	232.311	272.268	287.815

Regional emissions generated using EMFAC 7G. To pass, build emissions must be less than no build and 1990. The roadway construction related PM₁₀ emissions were included in the regional emission analysis.

Table 7.5 (continued)

OZONE (TONS/DAY)—SUMMER TEMPERATURES—SCCAB – VENTURA COUNTY							
Ozone Precursor		1999	2002	2005	2010	2020	2025
ROG (VOC)	Budget	16.2	12.47	9.82	9.82	9.82	9.82
	2001 RTP	--	11.58	9.65	6.04	4.86	3.20
NOx	Budget	27.04	24.36	21.33	21.33	21.33	21.33
	2001 RTP	--	22.78	19.13	13.47	13.91	13.42

Regional emissions generated using EMFAC 7G. To pass, RTP emission must be equal to or less than budget.

PM ₁₀ (TONS/DAY)—ANNUAL AVERAGE TEMPERATURES—MDAB (SAN BERNARDINO COUNTY – EXCLUDING SEARLES VALLEY)				
	2000	2010	2020	2025
Build	--	16.068	20.607	22.268
No-build	--	16.104	21.001	23.052

Regional emissions generated using EMFAC 7F. To pass, build emission must be less than no-build and 1990. The roadway construction related PM₁₀ emissions were included in the regional emission analysis.

OZONE (TONS/DAY)—SUMMER TEMPERATURES—MDAB/SSAB *—(SOUTHEAST DESERT MODIFIED AREA)							
MDAB	SSAB (*)	2002	2005	2007	2010	2020	2025
ROG	Budget	31.07	26.45	23.31	23.31	23.31	23.31
	2001 RTP	18.77	16.20	14.20	11.57	10.70	7.84
NOx	Budget	65.79	57.06	54.82	54.82	54.82	54.82
	2001 RTP	45.24	40.20	37.72	34.19	40.84	40.66

Regional emissions generated using EMFAC 7F. To pass, RTP emission must be equal to or less than budget.

*Note: This federally designated Ozone non-attainment area covers three separate but contiguous areas: the Antelope Valley portion of MDAB, the San Bernardino County portion of MDAB and the Coachella Valley (including Banning Pass) portion of SSAB. The conformity analyses for NO_x and ROG are based on comparing SCAG's regional transportation emissions with the combined budgets of the three parts. The Coachella Valley and Antelope Valley emissions budgets are reflected in SCAQMD's 1994 AQMPs/SIPs and the San Bernardino County emissions budgets are reflected in the MDAQMD 1994 AQMP/SIP.

PM10 (TONS/DAY)—ANNUAL AVERAGE TEMPERATURES RIVERSIDE COUNTY (COACHELLA VALLEY INCLUDING BANNING PASS) SSAB				
PM10	2000	2010	2020	2025
Build	--	11.288	15.915	17.464
No-build	--	11.368	16.142	17.778

Regional emissions generated using EMFAC 7F. To pass, build emission must be less than no-build.

OZONE (TONS/DAY) SUMMER TEMPERATURES IMPERIAL COUNTY						
SSAB /	(Imperial)	1990	2000	2010	2020	2025
ROG	Build	--	--	4.864	4.038	4.265
	No-build	--	--	4.965	4.142	4.436
NOx	Build	--	--	14.644	16.763	17.913
	No-build	--	--	14.843	16.953	18.228

Regional emissions generated using EMFAC 7F. To pass, build emission must be less than the 1990 base year or the no-build.

PM10 (TONS/DAY) ANNUAL AVERAGE TEMPERATURES IMPERIAL COUNTY				
PM10	2000	2010	2020	2025
Build	--	9.358	11.918	13.560
No-build	--	9.794	13.066	14.938

Regional emissions generated using EMFAC 7F. To pass, build emission must be less than no-build.

CONFORMITY DETERMINATIONS AND FINDINGS

Regional Emissions Test

SCAG has determined the following conformity findings for the 2001 RTP under the required federal tests:

- ▶ SCAG's RTP regional emissions for Ozone precursors are consistent with all applicable emissions budgets for all milestone, attainment and planning horizon years for the following areas:
 - SCAB; the 1997 (amended 1999) Ozone SIP
 - SCCAB (Ventura County); the 1994 Ozone SIP
 - MDAB (Antelope Valley and San Bernardino County)/SSAB (Coachella Valley – including Banning Pass); the 1994 Ozone SIP
- ▶ SCAG's 2001 RTP regional emissions for NOx precursor are consistent with all applicable emissions budgets for all milestone, attainment and planning horizon years for the SCAB (the 1997 NO SIP).
- ▶ SCAG's 2001 RTP regional emissions (build scenarios) for the CO are less than no-build emissions and the future years are less than the 1990 base year emission for all milestone, attainment and planning horizon years.
- ▶ SCAG's 2001 RTP regional emissions (build scenarios) for the PM10 are less than the no-build emission for the following areas:
 - SSAB (Coachella Valley – including Banning Pass)
 - MDAB (San Bernardino County – excluding Searles Valley)

Timely Implementation of TCM Test

SCAG has determined that the TCM1 project categories listed in the 1999 Ozone SIP/AQMP for the SCAB are given funding priority and are on schedule for implementation.

SCAG has determined that the TCM strategies listed in the 1994 Ozone SIP/AQMP for the VC/SCCAB are given funding priority and are on schedule for implementation.

Financial Constraint Test

SCAG has determined that all projects and programs listed in the 2001 RTP are financially constrained. Detailed information on the financial analysis is included in the Technical Appendix.

Inter-agency Consultation and Public Involvement Test

SCAG has determined that the 2001 RTP and its associated transportation conformity analysis and finding comply with this federal requirement. All related topics were discussed through various forums such as: Transportation Conformity Working Group, Modeling Task Force, numerous RTP-related (topic-oriented) Task Forces and subregional groups during the past two years. These forums were open to the general public. For the public at large and to obtain input and community feedback, SCAG's Public Outreach Program was used. Detailed information is included in the Technical Appendix.

Additionally, the 2001 RTP and its associated technical appendices (including Transportation Conformity Report) were released in late December 2000 and early January 2001 for the public review and comment period, which ended on March 15, 2001. SCAG responses to the written comments were disseminated on April 2, 2001 and discussed in various forums.

PM₁₀ Construction-related Emissions Analysis

The 2001 RTP provides for the federally required PM₁₀ construction-related emissions analysis. In the SCAG Region, three of five PM₁₀ non-attainment areas are subject to the construction-related fugitive dust emissions analysis. These three areas are: the SCAB, the Coachella Valley portion of SSAB and the San Bernardino County portion (excluding Searles Valley area) of MDAB. The roadway construction - related PM₁₀ emissions were included in the regional emission analysis for these areas.

Transportation Conformity Report

This report provides detailed information on all associated procedures and methods utilized in conformity analyses and findings of the 2001 RTP and is included in the Technical Appendix.

ENVIRONMENTAL JUSTICE

Environmental justice analyses conducted for the 2001 RTP analyzed whether the Plan would result in disproportionate adverse impacts on low-income, minority, elderly or disabled populations in the SCAG Region. These analyses examined the distribution of Plan benefits in terms of improvements in mobility—primarily, travel time savings realized as a result of Plan investments—and accessibility—as measured by the number of jobs reachable within a given time. These benefits were compared with Plan costs—specifically, the burden imposed by the taxes that fund transportation investments: sales, gasoline and to some extent income taxes. Generally, these analyses found that the share of Plan benefits for low-income and minority groups was in line with, or greater than, the costs borne by these groups.

The environmental justice analyses generally showed that the Plan's environmental effects would not fall disproportionately on minorities, the low-income, the elderly or the disabled. This was true for the Plan's projected air pollutant emissions, both for the criteria pollutants analyzed and for air toxics, as represented by heavy-duty vehicle exhaust particulates. This was also the case for highway noise. However, the analysis predicted a continuation of disproportionately high aviation noise impacts on both minority and low-income groups.

The areas analyzed were Plan expenditures, accessibility, congestion (time savings), traffic safety, aviation and highway noise and air quality. Further detail on the analysis data, procedures and results is provided in the Technical Appendix.

DEMOGRAPHICS

In accordance with federal environmental justice guidance, SCAG analyzed the impacts of the RTP on minority and low-income populations in the Region, as well as on the elderly and the disabled. U.S. Census data from 1990 formed the basis of the analysis, with projections made to 2025 by SCAG forecasting staff.¹⁵ "Minority" is defined by federal environmental justice guidance to mean any ethnic or racial group other than white, regardless of numerical presence in the Region (that is, numerical minority or majority).

To analyze impacts on low-income groups, SCAG defined five income groups, each representing one-fifth of the Region's households according to their 1990 Census household incomes. These groups, or fifths, are also called income "quintiles." The first quintile is the lowest fifth of households in terms of annual income; the fifth quintile is the highest fifth in terms of annual income. SCAG also performed analyses with reference to a poverty level defined by federal guidance.

Elderly population was defined as those over the age of 65. The percentage of elderly people in the SCAG Region is projected to rise from about 10 percent in 1997 to over 15 percent in 2025. Disabled and mobility-limited persons were identified using U.S. Census data and were assumed to represent the same percentage in 2025 as in 1990.

PLAN EXPENDITURES

The 2001 RTP calls for substantial private as well as public investments in transportation programs. Data on travel behavior by income group and on Plan investments by travel mode were combined to determine the share of Plan expenditures directly benefiting each of the five income categories. When the public portion of Plan expenditures is

considered, over fifty percent would directly benefit the lowest two income groups, who generally tend to use transit more than higher-income groups (see Figure 7.2).

The lowest income group, representing only 15 percent of the Region's households, would receive the benefit of over 34 percent of the Plan's public expenditures. By contrast, the highest income group, constituting 16 percent of the Region's households, would receive only 15 percent of the Plan's public expenditures.

ACCESSIBILITY

A preliminary analysis was conducted to assess the effects of the 2001 RTP on accessibility to opportunities in the Region, broken down by income and ethnic groups. For this analysis, accessibility to opportunity was defined as the percentage of the Region's jobs accessible within 30 minutes by auto, or within 45 minutes by transit.

The analysis is further subdivided to show accessibility via low-cost transit, such as city bus and light rail, versus accessibility via any type of transit, including higher-cost commuter rail and bus, or potential high-speed rail systems. While the two transit categories do not correspond directly to income groups, one might expect that low-income travelers will tend to choose low-cost transit.

The analysis examined jobs available in the service and retail sectors, which are frequently entry-level jobs, as well as total jobs. Retail and service employment also serve as indicators of accessibility to essential services.

Figure 7.3

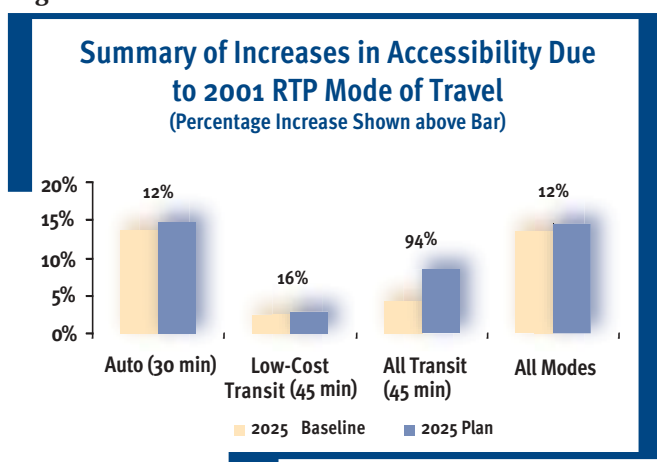
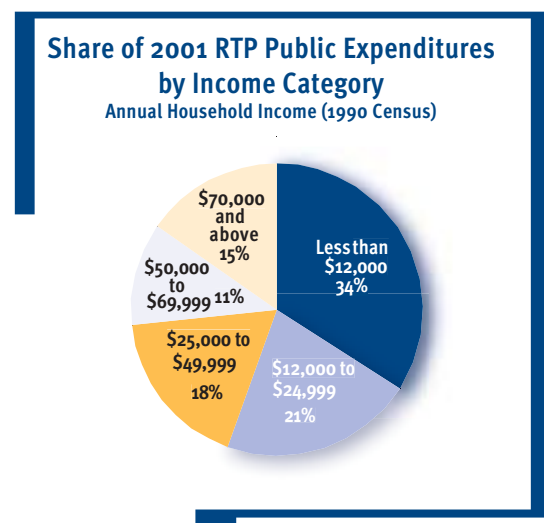


Figure 7.2



The 2001 RTP will improve accessibility to employment and essential services for all people in the Region, regardless of ethnic or income group. The results show that all groups in the Region will benefit to approximately the same extent (roughly 12 percent), when taking advantage of all modes of travel. In other words, the 2001 RTP would generally mean that approximately 12 percent more jobs would be accessible, Region-wide, than if the Plan were not adopted.

Results are better for that small segment of the population that depends on low-cost transit to access jobs and services. This segment—which is likely to belong to the lowest income quintiles—will benefit even more from adoption of the 2001 RTP (see Figure 7.3). Gains in accessibility due to the 2001 RTP for those who are dependent on low-cost transit will average about 16 percent, compared with only 12 percent for the Region as a whole. These gains reflect the new flexibility in local and regional travel that will come from low-fare feeder shuttle buses accompanying the proposed high-speed rail system, as well as other transit system improvements in the Plan.

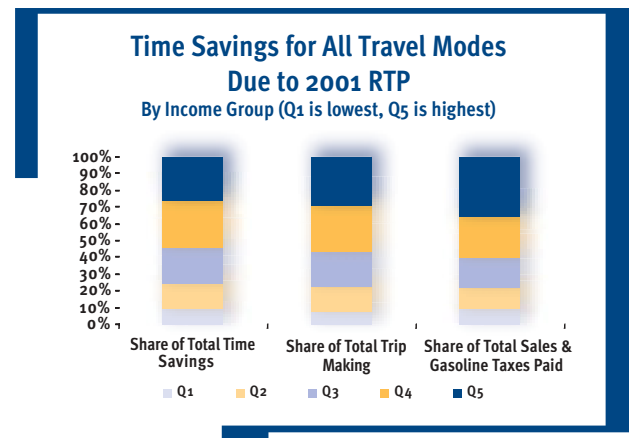
However, it should be noted that the absolute accessibility to jobs for those who are dependent on low-cost transit will still be quite low, only about three percent under the Plan (see Figure 7.3). Those who can take advantage of all forms of transit would enjoy the most dramatic increases in accessibility under the Plan, but still would not enjoy as much accessibility to jobs and services as auto users. SCAG will continue to work to address this difference.

CONGESTION

The 2001 RTP investments will bring about improvements in the level of congestion on roadways and travel time savings for all modes of travel. SCAG analyzed how these time-savings benefits would be distributed among various income and ethnic groups. The analysis also considered the burden of paying for these benefits, in terms of the sales and gasoline taxes that are the primary funding source for transportation system improvements. This analysis was based on SCAG's regional transportation model results, and helps to relate Plan costs directly to Plan benefits for various income and ethnic groups.

Generally, the share of time savings for various income and ethnic groups is similar to the share of trip making by each group, and to the share of transportation-related taxes paid by each group. Figure 7.4 shows that for all travel modes combined, the share of taxes paid by the highest income group is larger than their actual share of time-savings benefits. It also shows that the total time savings for the lowest three income groups slightly outweighs the share of tax burden borne by these groups.

Figure 7.4



The results are similar for the largest ethnic groups in the SCAG Region. The share of taxes paid (and trips made) by Latinos is slightly less than the share of time savings they would receive under the 2001 RTP (see Figure 7.5). However, the same is not true for Asian/Pacific Islanders, whose share of taxes and trip making slightly outweigh the share of time savings they would receive under the Plan. This result may be due to the specific locations where these ethnic groups tend to concentrate in the Region.

When time savings on low-cost public transit, such as local bus and urban rail systems, are considered, the results are even more favorable for lower-income groups. The two lowest-income groups would receive nearly 60 percent of the time savings on transit due to the investments in the Plan. Meanwhile, the share of taxes they pay is just over 20 percent.

TRAFFIC SAFETY

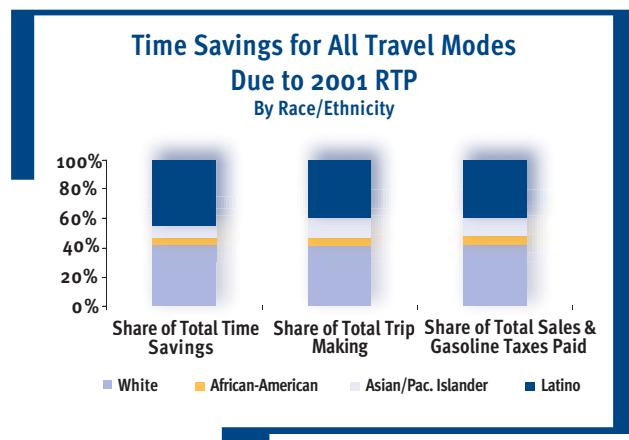
The risk of injury or fatality due to traffic accidents is related to vehicle miles traveled (VMT)

—that is, the more miles one drives, the higher one's risk of injury or death. The 2001 RTP is expected to reduce traffic injuries and to result in no appreciable change in traffic fatalities. Improvements in safety due to the 2001 RTP should be enjoyed by members of all income and ethnic groups in proportion to their numbers in the Region.

The risk to pedestrians likewise depends on the amount of walking, as well as the places where people walk. A September 2000 report by the Surface Transportation Policy Project, *Dangerous By Design*, examines pedestrian safety in Southern California. The report states that pedestrian fatalities account for 20 percent of all traffic deaths statewide, even though only 8 percent of trips are taken on foot. Moreover, the report found that low-income and minority persons are more likely to be victims of pedestrian accidents. These people may walk more often because of the lack of a car; the report also points out that affordable housing may more often be found on high-traffic streets.

While pedestrian safety was not analyzed in this 2001 RTP, the extensive expenditures to improve the Region's transit system, including low-cost shuttle buses and substantial investments in pedestrian and bicycling facilities, should provide new alternatives to traveling on foot and ultimately reduce the toll on pedestrians. Additional steps are encouraged at the local level (e.g., tighter speed limit enforcement; installation of stoplights, signs, pedestrian bridges and speed bumps; or traffic calming measures).

Figure 7.5



NOISE

The environmental justice noise analysis examined two sources of noise: high-way noise and aviation noise. These results are described separately below. Because of differences in data sources, noise standards and analysis methods, the two noise sources cannot be evaluated in combination.

Aviation Noise

SCAG used noise modeling to evaluate the potential impacts of aviation noise arising from flight operations at the Region's airports. System-wide impacts

were evaluated by adding together the impact projected for each airport in the Region, including both cargo and passenger operations. The Federal Aviation Administration (FAA) uses a measure of noise called the Community Noise Equivalent Level (CNEL), which takes into account the mix of aircraft types and the number and timing of flight operations, and penalizes evening and nighttime flights with a high noise value. The FAA considers a 65 decibel (dB) CNEL to be incompatible with residential land uses, so this was the noise threshold used for the analysis.

In this analysis, the total number of residents living within the projected 65 dB CNEL contour at all the Region's airports was determined. The demographics of these residents were then identified based on SCAG's forecasts for 2025. This demographic composition was compared to the demographics projected for the Region as a whole in 2025 to see whether any disproportion would exist. For example, since the Region in 2025 will be about 71 percent non-white, it might be expected that about 71 percent of the people affected by aviation noise

would be non-white. However, SCAG's analysis showed that 89 percent of people affected by aviation noise in 2025 would be non-white, a disproportionate impact (see Figure 7.6). Unlike other analyses, this analysis evaluated total 2025 regional aviation conditions and did not compare impacted population to a Baseline or existing condition. Thus, while the analysis shows a disproportionate impact, the entire impact is not attributable to the Plan.

Figure 7.6

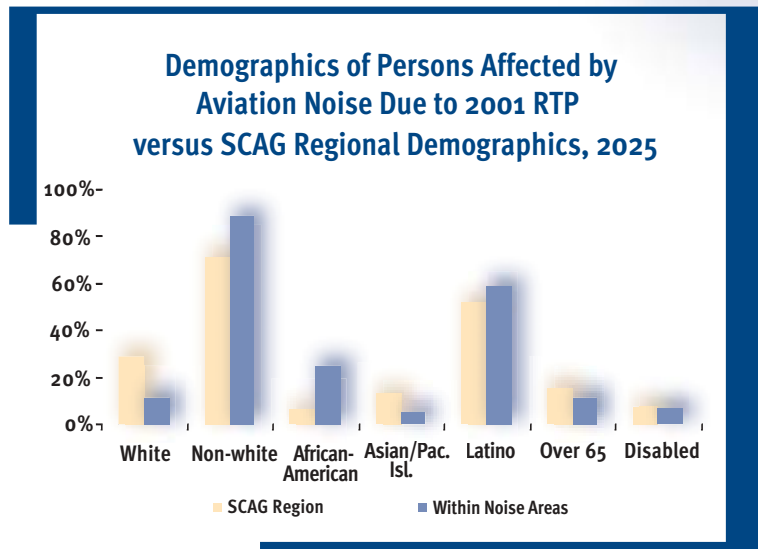
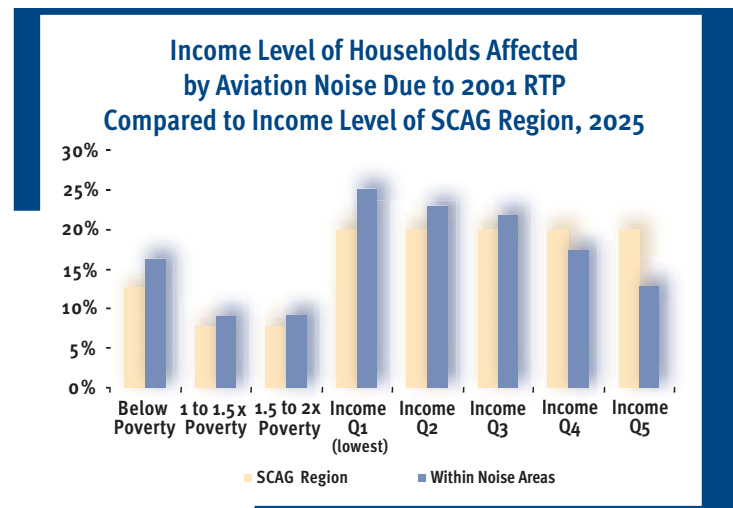


Figure 7.7



Whites, by contrast, will make up about 29 percent of the Region's population in 2025, according to SCAG's projections, but only 11 percent of people affected by significant aviation noise under the RTP. As shown in Figure 7.6, African-Americans and Latinos are the specific groups projected to experience disproportionate aviation noise impacts under the Plan.

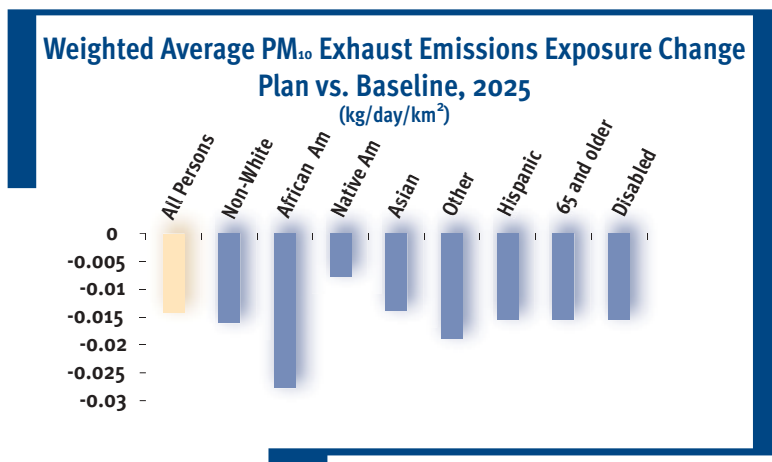
Populations that experience a disproportionate aviation noise impact also tend to have a lower income profile than the Region as a whole. Those living in noise-affected areas have a higher percentage of households in poverty than in the Region as a whole, according to SCAG's projections for 2025 (see Figure 7.7).

The aviation scenario selected to meet the Region's future aviation demand (designated Scenario 8), by limiting further expansion of LAX, is the best possible Plan outcome from an environmental justice perspective. This is due to the relatively high concentration of low-income and minority populations in the vicinity of LAX.

Highway Noise

Highway noise impacts were assessed by using the Regional Travel Demand Model and the Transportation Noise Model to identify those roadway segments where roadway noise would increase by any perceptible amount, based on projected changes in traffic volumes. In contrast to aviation noise, the Federal Highway Administration threshold for noise significance is 66 dB rather than 65 dB. The analysis did not show a disproportionate impact for minorities, the low-income, the elderly or the disabled.

Figure 7.8



AIR QUALITY

SCAG's air quality analysis is based on projected pollutant emissions arising from mobile sources under the 2001 RTP Update. Ideally, the analysis should take into account how these emissions travel and disperse throughout the Region when subject to weather patterns. However, this type of analysis is not required and is beyond the scope of the current Plan and associated programmatic environmental analysis. Therefore, emissions are used as an approximate indicator of personal exposure to pollution under the Plan as compared to the

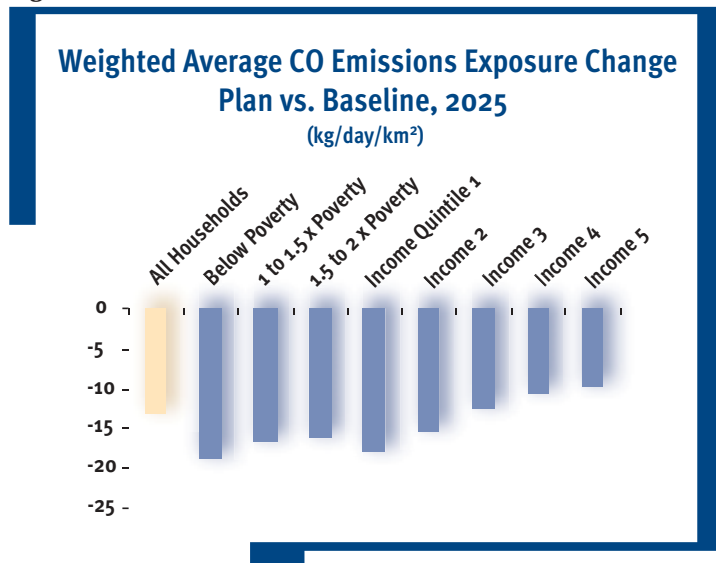
Baseline. The environmental justice analysis focuses on PM₁₀ (from exhaust and tire and brake wear) and CO, pollutants which tend to have localized as well as Region-wide effects.

It is important to note that total emissions of all pollutants (except SO_x and PM₁₀) in the Region will decrease substantially compared to existing conditions with or without the Plan, due to the combination of measures being taken to meet air quality standards. The Plan must demonstrate conformity with regional air quality management plans that call for reductions in emissions of air pollutants. The Plan achieves these reductions through investments

(described in Chapter V) that alleviate roadway congestion, reduce travel distances and times and provide a greater range of alternatives to the use of a car. To focus on the difference made by the Plan, the analysis is based on a comparison of Plan to Baseline conditions, rather than a comparison of Plan to existing conditions.

SCAG calculated the change in emissions exposure due to the Plan for CO and PM₁₀ (from exhaust and tire and brake wear), as well as for the portion of PM₁₀ that is emitted in heavy duty vehicle exhaust. Heavy duty vehicle exhaust is an

Figure 7.9



indicator of exposure to “air toxics”—pollutants from mobile sources that are not regulated by air quality standards. A recent study by the South Coast Air Quality Management District indicated that 90 percent of cancer risk from air pollutants in the air basin arises from mobile source emissions. Furthermore, the study found that 70 percent of cancer risk is attributable to diesel particulate.¹⁶

SCAG’s analysis of air emissions exposure did not indicate disproportionate impacts on minorities, low-income groups, the elderly or the disabled. For example, Figure 7.8 summarizes the results for the air toxics indicator (exhaust PM₁₀ from heavy-duty vehicles). All

groups are projected to experience a decrease in emissions exposure to this pollutant under the Plan compared to Baseline conditions. Results for CO and PM₁₀ (from exhaust and tire and brake wear) followed a very similar pattern.

For low-income groups, the results for change in CO emissions exposure are summarized in Figure 7.9. Again, all groups, regardless of income, will experience a decrease in CO emissions exposure under the Plan compared to the Baseline. Note that the decreases are projected to be larger for lower-income groups than for higher-income groups. Results for PM₁₀ (from exhaust and tire and brake wear) and the air toxics indicator follow a very similar pattern.